CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 97-041

REISSUANCE OF WASTE DISCHARGER REQUIREMENTS FOR:

U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT

TWO YEAR DREDGING CYCLE

SPRING 1997 THROUGH WINTER 1998

MAINTENANCE DREDGING

The California Regional Water Quality Control Board, San Francisco Bay Region (Regional Board), finds that:

1. **Routine Dredging Activities** The U.S. Army Corps of Engineers, San Francisco District (hereinafter the "Corps") maintains the navigability of Federally authorized channels in the San Francisco Bay. The Corps removes accumulated sediment (primarily silt and clay) by hydraulic (e.g. self-propelled hopper; hydraulic cutter head) or mechanical (e.g. clamshell) dredge and disposes of the material by either self-propelled hopper or dump scow at a designated aquatic disposal site. The Corps maintenance dredging program accounts for between one quarter and two thirds of all the sediment disposed of in San Francisco Bay.

2. **Relation to New Work** Additionally the Board has found that new "navigation improvement" or deepening projects can result in significantly higher volume of sediment for disposal. In actions separate from these Requirements, the Board has recently approved the deepening of the Ports of Oakland and Richmond carried out principally by the Corps. These projects have not disposed of material at in-bay disposal sites; rather, they were approved for construction using the federally designated Deep Ocean Disposal Site, located approximately 50 miles offshore of San Francsico Bay. The Oakland project is currently under construction and the Richmond project is expected to begin in Spring.

3. **Routinely Dredged Projects** The Corps dredging proposal consists of the following projects to be carried out with in the federal fiscal year. Upland sites are furnished by the local sponsor for that project.

1997 Projects	***Typical Disposal Site***
San Rafael Creek Across-the-Flats	San Pablo Bay (SF-10)
San Leandro Marina (RWQCB Action - February 19, 1997, approved in-bay disposal)	Upland on-site ponds
Pinole Shoal-San Pablo Bay	San Pablo Bay (SF-10)
Richmond Harbor	Alcatraz (SF-11)
Oakland Harbor	" "
Suisun Bay Channel	Suisun Bay Side Cast
Napa River Channel	Upland at Kennedy Park
1998 Projects	
Richmond Harbor	Alcatraz (SF-11)
Suisun Bay Channel	Suisun Bay Side Cast
New York Slough *(dredge site is in RWQCB-Central Valley jurisdiction)*	" "
Oakland Harbor	Alcatraz (SF-11)
Mare Island Strait	Carquinez Strait (SF-09)
San Rafael Canal -Channel	Alcatraz (SF-11)
Petaluma (Across-the-Flats)	San Pablo Bay (SF-10)
Suisun City / Slough	Upland at Pierce Island

4. **Non-Routine Dredging**

A. Delta Islands

The Corps has also carried out disposal at other upland locations under special circumstances. In 1994, the Corps placed about 120,000 cubic yards (cys) of material from the Suisun Bay Channel and New York Slough at the Jersey Island levee reinforcement demonstration project.

The Corps completed two studies of beneficial reuse of dredged sediment as required under previous Requirements. A report entitled *Lessons Learned* discusses the environmental, business and logistical issues associated with the Jersey Island demonstration project.

The *Lessons Learned* report states that "the Delta Flood Protection Act of 1988 (SB 34) authorized the Department of Water Resources (DWR) to develop and implement levee repair and strengthening on eight western Delta islands. These islands represent both a valuable agricultural resource as well as a barrier to intrusion of sea water into the delta waters designated as irrigation and municipal (drinking) water (state and federal water projects). In order to carry out the Delta Flood Protection Act, DWR is directed to cost-share opportunities with public entities and federal agencies who have interests in flood

protection." The DWR levee program ("subvention") has responsibility for about 211 miles of levees under their program need to be bolstered with soil or sediment.

More recently, DWR acquired 90 percent ownership of Sherman Island, which is a key western Delta island, and have established an off-loading and stockpiling location for dredged material. Sherman Island has 9.7 miles of levees.

B. Sonoma Baylands

Also in 1994, the Corps placed material from the Petaluma River-Across the Flats at the Sonoma Baylands Restoration project- pilot unit. The levees at both the pilot and main units of Sonoma Baylands project were breached in 1996, allowing daily inundation by the Bay tides waters.

Both the Jersey Island and Sonoma Baylands beneficial reuse projects involved extensive monitoring by the Corps and local sponsor of decant and runoff water quality, as well as wetland impacts.

C. San Leandro Marina

In March of 1996, the Board recommended certification to the State Board Executive Director allowing the City of San Leandro and the Corps to dredge and dispose of material from the San Leandro marina project at the in-bay disposal site, off Alcatraz (SF-11) on a "one-time" basis.

D. Dredging Emergencies

The Corps is required to ensure that all navigation channels are dredged to a safe depth. If, through routine surveying, an area has shoaled to a dangerous elevation, the Corps may carryout dredging on a limited basis even though that project is not scheduled for dredging. In such cases, an expedited testing and approval process is often necessary.

5. **Environmental Documentation** The proposed maintenance dredging is exempt from CEQA pursuant to Section 15304(g) of the Resources Code.

6. **Basin Plan** The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations, section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater's.

7. **Water Quality Impacts** Dredging activities and disposal at dispersive sites is known to temporarily increase the suspended sediments in the Bay. Effects of increased sediment loading and contaminant release may have a deleterious effect on the Estuary's fisheries and other Beneficial Uses.

8. **LTMS** The Regional Board recognizes that the continued disposal of maintenance work will require a demonstration that there are no significant or irreversible impacts

occurring from the disposal of maintenance dredged material in San Francisco Bay. The Regional Board recognizes the COE expertise in this area and encourages the Corps to implement the Long Term Management Plan (LTMS) for dredged material. Currently there is an LTMS management committee which typically meets on a monthly basis to discuss and coordinate permit actions. The Regional Board will continue to participate in the development of the Strategy and in the implementation of LTMS disposal alternatives.

9. **Study of Adverse Impacts** The disposal of dredged sediment in San Francisco Bay is suspected of having an adverse impact on some of the Estuary's Beneficial Uses. In order to assess the impacts to the Bay's resources from dredging, and dredged material disposal, comprehensive and detailed studies of dredging and dredged material disposal and their relationship to all chemical, physical and biological processes are necessary. Little information is available to assess the cumulative and long-term effects of this activity. Therefore, studies are warranted to better ascertain what effects are occurring and the feasibility of mitigating these impacts by the application of technology and best management practices. Of particular concern is the impact of how dredge disposal alters current patterns and dispersion of sediment in the Estuary, the effects of suspended sediment on turbidity, and how dredge disposal effects the bioavailability of toxic substances and subsequent acute and chronic effects in the Estuary. The Regional Board recognizes the lack of information about these concerns and therefore endorses a study-based approach to monitor the effects of dredging and dredge disposal.

10. **Regional Monitoring** The Regional Board implemented the Regional Monitoring Program (RMP) in April of 1992. The RMP is a coordinated and comprehensive, long-term monitoring program which will provide resources for the monitoring of water sediment quality to determine compliance with relevant numerical objectives, and to study bioaccumulation, at an array of Bay locations. Additionally, the RMP provides for more focused special and pilot studies of issues faced by the program participants.

11. **Participation in Regional Monitoring Program** The Corps is a participant in the RMP and contributes to the program by funding monitoring carried out by the United States Geological Survey (USGS). The work conducted by USGS under the RMP consists of data collection and analysis at various stations within the south, central and northern portions of the San Francisco Bay. The purpose of the program is primarily to develop time-series suspended sediment data in order to better understand sediment transport processes and to create a comprehensive database for various numerical (computer) modeling efforts.

12. **Sand Deposits** The Corps has conducted studies which show that dredged material from the Pinole Shoal, Suisun Bay Channel and New York Slough is primarily sand that has readily identifiable beneficial uses. Natural alluvial processes result in sand deposits or shoals in the above projects. Dredging records and LTMS studies show these areas to have large volumes of course-grained sediments which have low pollutant burdens and numerous construction-related uses. The Suisun Bay channel disposal site is routinely dredged by a commercial sand mining company. The Regional Board will continue to explore ways in which commercial sand mining operations can work in partnership with the Corps in the Suisun Bay and other areas were the dredged material has a high sand content.

13. **Demonstration Project** In 1993, the Corps dredged the Suisun Bay Channel in order to demonstrate that dredged material from the Suisun Bay could be placed on Delta island levees for the purposes of levee stabilization.

14. **Disposal Site Mounding** The Corps conducted surveys of the Alcatraz disposal site (SF-11) which, in the late 1980's showed a drastic decline in depth and unexpected bottom topography ("mounding"). The Corps instituted administrative controls and will continue to monitor disposal site characteristics as a part of these Requirements. The Alcatraz disposal site is operated as a "dispersive" site. That is material disposed of at the site is dispersed by down-stream currents and tidal flows thereby the site remains at a relatively constant depth.

15. **Development of Alternate Disposal Sites** The LTMS is developing alternative disposal options which may result in changing the designated disposal sites for the aforementioned projects in order to maximize beneficial uses of the dredged sediment. In particular, these Requirements specify that the Corps must consider ocean and upland disposal for all major projects in fiscal year 1996.

16. **Volume Targets**

Target volumes for the dredged material disposal sites are contained in the Basin Plan as follows. The maximum monthly volume targets cubic yards (C.Y.) of dredge sediment allowed for disposal at each site are:

Site	Target Volume(C.Y.)
Alcatraz (SF-11)	
October - April	1.0 million
May - September	0.3 million
Carquinez Strait (SF-9)	
(any month)	1.0 million
San Pablo Bay (SF-10)	0.5 million

The maximum annual volume targets in cubic yards (C.Y.) for each calendar year at each disposal site are:

Site	Target Volume(C.Y.)
Alcatraz (SF-11)	4.0 million
Carquinez Strait (SF-9)	2.0 million (NY) 3.0 million (WY)
San Pablo Bay (SF-10)	0.5 million

The volume targets for the Carquinez Strait disposal site are 3.0 million cubic yards for wet and above normal years (WY) and 2.0 million cubic yards for all other year classification (NY). Water year classification are designated by the California Department of Water Resources (DWR).

17. **Dredged Material Testing Program** In response to mounding problems, the Regional Board and Corps proposed to significantly reduce the allowable monthly disposal rates and volumes at the Alcatraz site (COE Public Notice No. 93 -3). The result of the Corps' policy on Alcatraz site target volumes may result in a lower allowable quantity of material permitted to be disposed of at the Alcatraz site.

18. **Alcatraz Environs Sampling** For disposal of dredged material at the Alcatraz site (SF-11), the Corps has implemented guidelines for sediment testing which require the dredge disposal permittee to compare test results against the Alcatraz site "Environs" reference. The Alcatraz Environs is a composite of eight points which surround the disposal site. In that the disposal site is highly dynamic, the Environs reference was implemented in order to better assess local "background" conditions and avoid the possibility that an applicant may be comparing their results to material recently deposited at the disposal site. The Corps continues to work with Regional Board staff to determine appropriate reference sites for the sediment testing program. Unfortunately, use of the Environs has resulted in various technical and procedural problems (e.g., incomparable grain size). However, recent changes in federal regulations now allow use of reference sites in areas that are different from the disposal site ("off-site"). Regional Board staff will work closely with the Corps to study alternative reference sites which are more appropriate for maintenance dredging projects.

19 **Beneficial Uses** The beneficial uses of San Francisco Bay in the vicinity of the dredging and disposal areas are:

a. Fish migration and spawning
b. Estuarine habitat
c. Wildlife habitat
d. Preservation of rare and endangered species
e. Water contact and non-contact water recreation
f. Shellfish harvesting
g. Commercial and sport fishing
h. Navigation
i. Industrial process and service supply

20. **Review by Applicant** The Corps and interested persons have been notified of the Regional Board's intent to issue requirements for the Corps and have been provided with the opportunity to submit their written comments.

The Regional Board, in a properly noticed public hearing on March 19, 1997 heard and considered all comments pertaining to the Corps.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder and to the provisions of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the Corps shall comply with the following:

A. *RECEIVING WATER LIMITATIONS*

1. The dredging and disposal activities shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The discharge of waste shall not cause the following conditions to exist in waters of the State that cause a nuisance or adversely affect beneficial uses at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Aquatic growths;

   c. Significant alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

3. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

a.	Dissolved Oxygen	5.0 mg/l minimum. Median of any three consecutive months shall not be less than 80% saturation. When natural factors cause lesser concentration(s) than those specified above, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.
b.	Dissolved sulfide	0.1 mg/l maximum
c.	pH	Variation from natural ambient pH by more than 0.5 pH units.
d.	Un-ionized ammonia	0.025 mg/l as N Annual Median 0.16 mg/l as N Maximum
e.	Turbidity	The turbidity of the waters of the state at any point beyond 200 feet outside of the disposal area shall not increase above background levels by more than the following:

Receiving Water Background	Incremental Increase
< 50 units	5 units, maximum
50 - 100 units	10 units, maximum
> 100 units	10% of background, max

4. The discharge shall not cause a violation of any applicable water quality objectives for receiving waters adopted by the Regional Board and the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

B. *PROVISIONS*

1. Quarterly Reports: The Corps keeps a record of all disposal events that take place at the in-bay and ocean (aquatic) disposal sites in the San Francisco Bay Area. A quarterly summary report (Quarterly Report) of all dredging activities in San Francisco shall made available to the Regional Board staff and interested members of the public through the Dredged Material Management Office (DMMO), which is hosted by the Corps. The quarterly report shall contain the following information for each project: name of project, dates dredged, volume of material proposed for removal (in-place, surveyed), dredged volume disposed ("bin"), disposal site(s) used, name of any affiliated dredging permit holders (permittees).

2. Disposal Site Monitoring: The Corps conducts quarterly bathymetic surveys of the three existing in-bay disposal sites. The Corps shall keep a record of these surveys on file and shall make them available for inspection by the Regional Board, other regulatory agencies and interested members of the public upon written request to the Corps staff.

3. Anticipated Dredging Activities: The Corps shall provide project information in advance of dredging projects. The Corps shall request in writing authorization by Regional Board staff for each dredging project. The Corps shall submit the Request for Authorization as follows.

    A. A request submitted at least 60 working days in advance of the start of dredging which shall include a sampling and analysis plan (SAP) submitted for approval by Regional Board staff. The SAP shall follow guidelines developed by the inter-agency dredging permit group (DMMO).

    B. Estimates of the volume of dredged material to be removed from each project (in cubic yards) based upon current condition bathymetric surveys and dredging history. These bathymetric surveys shall be kept on file and be available for inspection by the Regional Board, other regulatory agencies and interested members of the public upon written request to the Corps staff.

    C. Original copies of all laboratory results and findings for dredging projects, including all results of sediment testing and analysis shall be submitted for approval by the Regional Board staff at least 30 days in advance of dredging. The submittal shall including both a summary of chemical and toxicological testing in tabular form, as well as copies of laboratory analysis and quality control and assurance (QA/QC) sheets.

4. Disposal Activities Record On a quarterly basis, the Corps shall provide a report summarizing the site capacity and topography for all three of the in-bay disposal sites: SF-9, SF-10 and SF-11 based upon recent bathymetric surveys. Additionally, a written summary of disposal and reuse at upland locations shall be included. This requirement is applicable to all dredging activities by public and private sector entities which occur in the quarterly period..

5. Disposal Site Volume Targets The Corps shall comply with the volume targets specified by the Regional Board in this Order, and contained in the Regional Board's June 21, 1995 Basin Plan.

6. Sediment Testing The Corps shall conduct physical, chemical, and biological sediment characterization of the sediment to be disposed in San Francisco Bay in accordance with *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. -Testing Manual (Draft)* or subsequent final version; the *Evaluation of Dredged Material Proposed for Ocean Disposal.-Testing Manual (Final)*; also referred to as the "Green Book", or other methods and protocols approved by the Regional Board's Executive Officer. Dispersion models shall contained in the above manuals shall be run for in-bay disposal, as appropriate. The testing program for each project will be clearly described in the Sampling and Analysis (SAP) for each dredging project.

7. Regional Monitoring The Corps shall participate in regional monitoring of pollutant effect in San Francisco Bay. In previous years, the Corps has participated in the Regional Monitoring Program for trace substances (RMP). Past contribution to the RMP by the Corps has been by support of the United States Geological Survey (USGS) for study of suspended sediment processes. Implementation or funding of the USGS study on suspended sediments, or other RMP study program will constitute participation in the San Francisco Regional Monitoring Program, and as Corps below.

8. RMP Cost Allocation The Corps contribution to the RMP shall be based upon the relative amount of sediment dredged and disposed of at San Francisco in-bay sites over the previous state fiscal year. The relative amount is determined by dividing maintenance dredging volumes, excluding the San Francisco Bar channel (SF-08), by the total volume disposed by all projects which disposed of material at in-bay sites.

9. Cessation of Discharge The discharge of dredged materials to the waters of the State shall cease immediately whenever violations of these Requirements are detected by the Corps or by Regional Board staff as determined by the Executive Officer, and the Corps shall not resume until compliance can be assured to the Executive Officer's satisfaction.

10. Herring Fishery The Corps shall not carryout dredging activities in designated areas during the typical spawning period , December 1, 1997, through March 1, 1998, unless written approval is obtained from the Department of Fish and Game.

11. Disposal Management The District Engineer, in consultation with the Executive Officer on a case-by-case basis shall make a determination for each maintenance dredging episode of the appropriateness of in-Bay disposal and the Corps may be required to place material at another site in order to meet overall dredged material management goals as follows:

a) Re-use Requirements The Corps will implement a process to negotiate and enter into agreement(s) with the state Department of Water Resources, the State Coastal Conservancy, and other local sponsors, as necessary, in order to facilitate the placement of dredged material at non-aquatic and "beneficial re-use" sites.

b) Hamilton Restoration For projects to be carried out in federal fiscal year 1998, the Corps shall study the feasibility of disposing of dredged material from some or all central bay maintenance dredging projects at the Hamilton Air Field site at Novato, Marin County. A written progress report for this provision shall be submitted by the Corps to the Regional Board on November 1, 1997.

c) Flood Control Re-use For the dredging of Suisun Bay channel and New York Slough, the Corps shall discharge dredged material at Sherman Island or other appropriate delta island site, as determined by the Department of Water Resources and staff of the Regional Board, for the purpose of levees reinforcement and flood control. The Corps shall implement a process to facilitate the routine placement of dredged sediments from these projects. Sherman Island has been designated as a levee reuse island by the Department of Water Resources. A written progress report for this provision shall be submitted by the Corps to the Regional Board on a monthly basis, beginning April 1, 1997, until an agreement has been signed or these Requirements expire.

12. Ocean Disposal The Corps shall dispose of dredged material from maintenance dredging projects at the designated deep ocean disposal site for projects occurring within the same time-frame and location as a scheduled Navigation Improvement (deepening) project. A written appraisal of feasibility shall be submitted when dredging occurs during at the same time, by the same contractor or under the same contract covering the material to be disposed of at deep ocean disposal site. Currently, this provision applies only to dredging of the Richmond and Oakland harbor areas.

13. The Corps shall permit the Regional Board or its authorized representative in accordance with California Water Code Section 13267(c):

i) Entry upon premises in which any required records are kept.

ii) Access to copy any records required to be kept under terms and conditions of this order.

iii) Inspection of monitoring equipment or records.

iv) Sampling of any discharge.

v) Provide small craft transport to off-shore locations or vessels for the purpose of inspection, provided that it is within normal business hours.

14. The Corps shall comply with all applicable items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986.

15. This Order supersedes Order No. 95-040.

16. Pursuant to section to Title 23, California Code of Regulations Section 3857, these Requirements are issued in place of water quality certification.

17. This Order will expire on March 1, 1999, and upon submittal of all required reports to the satisfaction of the Executive Officer.

I, Loretta K. Barsamian, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 19, 1997.

Loretta K. Barsamian

LORETTA K. BARSAMIAN
EXECUTIVE OFFICER